Observations on the Functions of the Brain. *By Sir* Everard Home, *Bart. F.R.S.* Read May 26, 1814. [*Phil. Trans.* 1814, *p.* 469.]

The observations comprised in this paper, are selected from those cases of injury to the brain which have occurred to the author in the course of his professional pursuits. The facts thus accidentally forced upon his notice, may be regarded as so many experiments made on different portions of the living brain; and the remarks upon them relate to those effects which tend to elucidate their several functions.

The collection of observations here given, are classed under different heads; and with respect to the first set, which relate to the pressure of water on the brain, the subject is again subdivided according to the parts in which the water may be collected, whether in any of the ventricles, or between the membranes. In the next place, the consequences of concussion of the brain generally, are also considered.

The effects of extravasation of blood, in various situations, are separately described. The consequences that ensue from formation of matter, and immediate relief of the symptoms by its removal, are noticed.

The symptoms that occur from depression, or from thickening of different parts of the skull, are next distinguished, as well as those which arise from pressure of soft tumours in different situations.

In addition to the preceding, which are all instances of pressure variously modified, the author adds his observations relating to wounds, inflammation, and suppuration of the cerebrum in different parts; and his remarks upon injuries done to the medulla spinalis, which form the concluding section of his classification.

Further Experiments and Observations on Iodine. *By Sir* Humphry Davy, *LL.D. F.R.S. V.P.R.I.* Read June 16, 1814. [*Phil. Trans.* 1814, *p.* 487.]

The present set of experiments are, in part, a continuation of the author's experiments on compounds of iodine and fixed alkalies, which he treats of under the head of triple compounds, because they contain iodine, oxygen, and potassium, or sodium. But he also treats of various compound salts, which this substance forms in conjunction with other acids, and of the effects produced upon iodine by the action of some compound gases.

When the triple compound of iodine, oxygen, and potassium, is dissolved in nitric acid, the acid may be distilled without any decomposition of the salt; but when it is dissolved in sulphuric acid or phosphoric acid, the heat which these acids will bear is sufficient to decompose the salt, which then yields oxygen and iodine, and leaves sulphate or phosphate of potash.

When a solution of this salt, in strong muriatic acid, is heated, there is a smell of chlorine, the fluid becomes yellow, and yields, by distillation, chloriodic acid.